

REMARKS

Summary of the Office Action

Claims 7-14 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Anstrom et al. (US 6,407,341) in view of Iijima et al. (US 2003/0011070).

Claims 7-14 stand rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite.

Summary of the Response to the Office Action

Applicants have amended claim 7 to merely correct informalities. Accordingly, claims 7-14 are currently pending.

All Claims Comply With 35 U.S.C. § 112

Claims 7-14 stand rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite. Specifically, the Office Action alleges that “the newly added limitation, ‘removed the first copper plated layer serves as plating lead line’ render the claim indefinite since it is ambiguous.” Accordingly, Applicants have amended claim 7 to specifically recite “...of the base substrate where portions of the first copper plated layer have been removed...” In addition, Applicants respectfully assert that the presumption by the Examiner that “the newly added limitation means to remove portions of the copper layer in order to expose the surface of the base substrate” is not entirely correct. For example, as shown in FIGs. 6h-6k, and now recited by amended independent claim 7, the gold layers 39 formed on the first copper plated layers 33 and the base substrate 31 correspond to the claimed wire bonding and solder ball pads, respectively, as recited by amended independent claim 7.

In addition, Applicants respectfully assert that the informalities noted by the Examiner would be clear to one of ordinary skill in the art and do not rise to the level of indefiniteness. Moreover, Applicants respectfully assert that the amendments do not narrow the intended scope of the claims. Thus, Applicants do not intend to acquiesce any subject matter by these amendments.

For at least the reasons above, Applicants respectfully assert that claims 7-14 comply with the requirements of 35 U.S.C. § 112. Thus, Applicants respectfully request that the rejection of claims 7-14 under 35 U.S.C. § 112, second paragraph, be withdrawn.

All Claims Define Allowable Subject Matter

Claims 7-14 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Anstrom et al. (US 6,407,341) in view of Iijima et al. (US 2003/0011070). Applicants respectfully traverse these rejections for the following reasons.

First, the present invention applies electrolytic Au plating process to wire bonding pads and solder ball pads by using a first copper layer 33 as a plating lead line without separate plating lead line. However, the plating layers 125, 127, and 129 of Anstrom et al. applies electrolytic plating process with a different method, which is different from the present invention.

Specifically, Anstrom et al. discloses (col. 10, lines 52-67):

“The microvias 124, 126, and 128 are formed in the surface layer 120 after the surface layer 120 has been applied to the multilayered laminate 70. Similarly, the microvias 134, 136, and 138 are formed in the surface layer 130 after the surface layer 130 has been applied to the multilayered laminate 70. The microvias 124, 126, and 128, as well as the microvias 134, 136, and 138, may be formed by any method known to one of ordinary skill in the art, such as by laser drilling into the dielectric sheet 122 down to the conductive metalization on the signal layer 120 to form a microvia, followed by electroless plating of metal (e.g., copper) on seeded surfaces (e.g., palladium seeded surfaces) of the microvia to form an electroless layer of the metal.

After the electroless plating, the metal (e.g., copper) is electroplated over the electroless layer to form the plated layer of each of microvias 124, 126, 128, 134, 136, and 138” (emphasis added).

Accordingly, the plating layers 125, 127, and 129 of Anstrom et al. are processed electrolytic plating by forming the microvias 124, 126, 128, 134, 136, and 138 by laser drilling into the dielectric sheet 122, and electroless plating of metal (e.g., copper) on the seeded surfaces is applied after forming a seeded layer (comprising platinum layer, which is not shown) the signal layer 120 and the surfaces of the microvias. In other words, Anstrom et al. applies electrolytic plating to the plating layers 125, 127, and 129 by using electroless plating layer formed in the seeded surfaces. Accordingly, the plating layers of Anstrom et al. are formed with completely different method from claims 7 of the present invention and therefore reflected in the structure. That is, according to the present invention, a first copper layer 33 and a second copper layer 35 are formed, and on the above electrolytic Au plating layer 39 corresponding to the pads is formed in the present invention, whereas the seed layer (not shown) and electroless plating layer (not shown) are formed separately between layer 66 and plating layers 125, 127, and 129 in FIG. 9 and the specification of Anstrom et al.

For the above reasons, Applicants respectfully assert that the rejection under 35 U.S.C. §103(a) should be withdrawn because the applied art does not teach or suggest the novel combination of features recited in independent claim 7, and hence dependent claims 8-14.

CONCLUSION

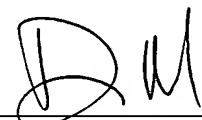
In view of the foregoing, withdrawal of the rejections and allowance of the pending claims are earnestly solicited. Should there remain any questions or comments regarding this response or the application in general, the Examiner is urged to contact the undersigned at the number listed below.

If there are any other fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-0310. If a fee is required for an extension of time under 37 C.F.R. § 1.136 not accounted for above, such extension is requested and the fee should also be charged to our Deposit Account.

Respectfully submitted,

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